

**ALLAMA IQBAL OPEN UNIVERSITY, ISLAMABAD**  
*(Department of Economics)*

**WARNING**

1. **PLAGIARISM OR HIRING OF GHOST WRITER(S) FOR SOLVING THE ASSIGNMENT(S) WILL DEBAR THE STUDENT FROM AWARD OF DEGREE/CERTIFICATE, IF FOUND AT ANY STAGE.**
2. **SUBMITTING ASSIGNMENTS BORROWED OR STOLEN FROM OTHER(S) AS ONE'S OWN WILL BE PENALIZED AS DEFINED IN "AIOU PLAGIARISM POLICY".**

Course: Statistics for Economists (804)  
Level: M. Sc. Economics

Semester: Autumn, 2013  
Total Marks: 100  
Pass Marks: 40

**ASSIGNMENT No. 1**  
**(Units 1–4)**

- Q. 1 Explain the difference between the following: (20)
- a) Statistics and Statistic
  - b) Population and Sample
  - c) Descriptive and Inferential Statistics
  - d) Primary and Secondary Data
  - e) Discrete and Continuous Variables
- Q. 2 A man tosses two fair dice. What is the conditional probability that the sum of the two dice will be 7, given that (i) The sum is odd, (ii) the sum is greater than 6, (iii) the two dice had the same outcomes. (20)
- Q. 3 a) Five men selected at random from a normal population with mean weight  $\mu = 160$  lb and  $\sigma = 20$  lb, get on elevator. What is the probability that: (10)
- i) All five men weigh more than 170?
  - ii) The average weight is more than 170?
  - iii) The total weight is more than 850?
  - iv) Give an intuitive reason why your answers are related?
- b) Given that  $x$  is normally distributed with mean 30 and standard deviation 8, calculate the probability that sample mean  $\bar{x}$ , based on sample size 16, will
- i) be less than 32 ii) exceed 36 iii) exceed 28 iv) be less than 25 v) lie between 33 and 34. (10)
- Q. 4 Distinguish between; (20)
- i) Probability and Non-probability Sampling
  - ii) Sampling and Non-sampling Errors
  - iii) Multistage and Multiphase Sampling

- Q.5 What is difference between discrete and continuous random variables? Also compute the mean and variance of discrete and continuous probability distributions? **(20)**

## **ASSIGNMENT No. 2**

**Total Marks: 100**

**(Units 5–9)**

**Pass Marks: 40**

- Q.1 a) Describe the properties of an estimator. **(05)**  
b) A sample of 300 employs was interviewed for opinions on their attitude concerning a new bonus plan being proposed by the management. The results, summarized separately for males and females, showed that 52 percent of the 180 male and 55 percent of the 120 female favoured it. Calculate a 90 percent confidence interval for the true opinion difference. **(15)**
- Q.2 a) Two sets of 50 elementary school children were taught to read by two different methods. After instruction was over, a reading test gave the following results: **(10)**  
 $x_1 = 73.4$ ,  $x_2 = 70.3$ ,  $s_1 = 8$ ,  $s_2 = 10$ . Test the hypothesis that  $\mu = \mu_2$ .  
b) Give  $x = 82$ ,  $\sigma^2 = 15$ , and  $n = 100$ , test the null hypothesis that  $\mu = 86$ . **(10)**
- Q.3 Explain the following terms: **(20)**  
a) Regression and Correlation  
b) Frequency Distribution  
c) Standard Error  
d) Normal Equations
- Q.4 What is OLS method of estimation? Discuss in detail the properties of OLS estimator? **(20)**
- Q.5 a) Explain the difference between cyclical and seasonal variations in a time series. **(10)**  
b) Explain with a suitable example, how Laspeyres price index differs from a simple arithmetic average of price relatives. **(10)**